**Stat and Data Analysis Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**CW – 5.1 & 5.2 Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ BLOCK: \_\_\_\_**

**For #1 & 2, identify the numbers given as parameters or statistics. Then, state the populations and samples.**

1. According to the most recent US Census, 70% of graduating seniors pursue higher education. At our school’s graduation ceremony, the principal announces that 90% of the graduating seniors are pursuing higher education.
2. In an experiment, overweight adult volunteers are randomly assigned to one of two diet plans: Weight Watchers or Jenny Craig. Those adults who were on Weight Watchers lost an average of 10.2 lbs after 60 days, and those adults on Jenny Craig lost an average of 9.7 lbs after 60 days.

**For #3 & 4, identify the type of sample that was taken. Would this sample produce accurate, representative results?**

1. Findings from an online survey conducted between January 14th and January 21st, 2004. During that time, 486 respondents answered questions about their blogging practices and their expectations of privacy and accountability for the entries they publish online. 36% of respondents have gotten in trouble because of things they have written on their blogs.
2. Interested in what percent of young women wear the shoe brand Uggs, a student asked all the girls in each of her classes whether or not she owned a pair of Uggs. She reported that 67% of young women own a pair of Uggs.

**Answer each**

1. How can we reduce bias?
2. How can we reduce variability?
3. What is the difference between a statistic and a parameter?
4. Ten of the 25 club members listed below are female. Their names are marked with asterisks in the list. The club chooses 5 members at random to receive free trips to the national convention.

Alonso Darwin Herrnstein Myrdal Vogt\*

Binet\* Epstein Jimenez\* Perez\* Went

Blumenbach Fern Luo Spencer\* Wilson

Chase\* Gonzales Moll\* Thomson Yerkes

Chen\* Gupta\* Morales\* Toulmin Zimmer

1. Write instructions to create a SRS of size 5 using a table of random digits.
2. Using the table below find a SRS of size 5 clearly showing the outcomes. Write the names of the chosen club members.

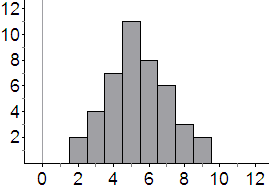
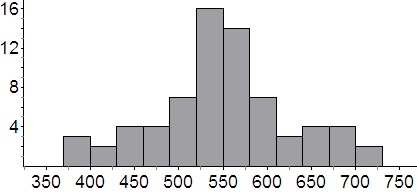
39270 70051 69766 03654 47207 62318 47390 90862

1. Using your calculator draw 20 OTHER SRS’s of size 5. Record the number of females in each of your samples.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Trial | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| # of Females |  |  |  |  |  |  |  |  |  |  |
| Trial | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| # of Females |  |  |  |  |  |  |  |  |  |  |

1. Make a histogram to display your results.



1. What is the average number of females in your 20 samples? 
2. Do you think the club members should suspect discrimination if none of the 5 tickets goes to a woman? Justify your answer.
3. Look at the following histograms. Identify each as high or low bias, and high or low variability.
4.  (B)

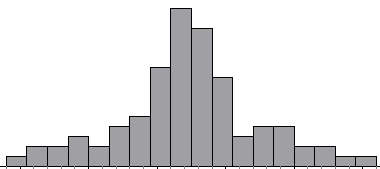
True Paramter

True Paramter

BIAS = \_\_\_\_\_\_\_\_\_ BIAS = \_\_\_\_\_\_\_\_\_

VARIABILITY = \_\_\_\_\_\_\_\_\_\_\_ VARIABILITY = \_\_\_\_\_\_\_\_\_\_\_

1. For the two histograms below, one is from a sample of size 1000 and another from a sample of size 25. Identify each.



1. (B)

Sample size = \_\_\_\_\_\_\_\_\_\_\_\_\_ sample size = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The Gallup Poll takes wants to measure college students opinions about various topics. They go to two colleges to collect data: Ohio State University (population about 60,000 undergraduates) and Johns Hopkins University (population about 5,000 undergraduates).
2. If the researchers select a sample size that is 100 students at each school, what can be said about the variability (spread) of the sampling distributions?
   * 1. OSU = JHU
     2. OSU > JHU
     3. OSU < JHU
     4. Cannot be determined
3. If the researchers select a sample size that is 5% of the population at each school…
   * 1. What is the sample size for OSU? \_\_\_\_\_\_\_\_\_ For JHU? \_\_\_\_\_\_\_\_\_\_\_
     2. What can be said about the variability (spread) of the sampling distributions?
        1. OSU = JHU
        2. OSU > JHU
        3. OSU < JHU
        4. Cannot be determined